

Below please find the minutes from NF08 + NFXX meeting held on June 4th 2020

The NF08 group called a meeting with members of the neutrino frontier. The purpose of the meeting was to connect NF08 with NF01 to NF06 in order to discuss issues related to neutrino theory and how it “fits” within the different NFXX tasks.

Attendees: Balantekin, de Gouvea, Denton, Giunti, Huber, Machado, Mocioiu, Ochoa-Ricoux, Pastore, Strigari, Tamborra, Worcester, Yu

The main topic was to discuss how NF08 can contribute to the theory efforts across the entire NF.

The following issues were discussed:

- What is the charge for NF08?

The main goal of 08 is to develop a theory rationale.

By design there was no intention for a given physics topic to be placed in one topical group or other. Each group is to think about the totality of their topic. Given the physics, there will be overlap, making it harder to organize.

In the final document, we need to make the theory in the entire document coherent. Theory group pulls together the theory components of the document, making sure the theory stands up to scrutiny, and draws from the overall physics motivation.

- Don't envision self-organized meetings in NF08. Will help collect expertise.

For example, in neutrino properties, great if 08 could help organize with the neutrino properties group. Correct not to have a separate theory workshop for NF08.

Maybe have a meeting or session to discuss how to grow neutrino theory in the US. Need more neutrino theorists on faculty. One idea is bridge positions. Universities can be incentivized. Piggy back on a workshop to have a brainstorming session to determine how we've grown since the last snowmass. The Neutrino community seems to have grown a little bit in the last 10 years, but still more room.

Specific overlap between neutrino theory and neutrino cross sections. NF09 would like to involve theory into relevant questions in their topical group. 08 would like to help with dedicated workshops if required, but not necessary.

Short workshop in July/Aug in Neutrino properties. One topic is $\nu 2bb$, including one on theory. Would like collaboration with 08. Difficult to find speakers from the US on this topic. Suggestions welcome.

Natural sources will organize workshops, and would like to collaborate on theory part with 08.

Get community not labeled 'neutrino theory' in these workshops (i.e. BSM, dark matter theory, 2nubb

theorists).

Think about neutrino theory in the context of the larger theory community.

- We think there should be a NF-TF liaison. This is very important for the neutrino theory community.

We feel we should have a seat at the table at the entire theory frontier. We (08) think there should be a theory liaison to represent neutrino physics

Perspective on theory liaisons is evolving. Could all members of the neutrino theory group become liaisons? Or should we have one person whose job it is to do this and only this?

The ultimate goal is to get the rest of the theory community to understand the importance of neutrino physics.

Note that the theory frontier defines itself. Diverse representation of topics in the theory frontier. We should put pressure on them to make them aware that neutrino theory is important.

Concern of the divide between pheno and formal theory. Important for theory to present a unified picture and to have a unified voice.

What about connecting other pheno groups that have connections to neutrinos? One way is to submit broadly-supported LOIs; cross list these in other frontiers. We don't want to be outside of the theory frontier.

The place to have these discussions in the NF is in the theory frontier. Gets back to the question of deciding upon the neutrino theory liaison.

- The July Town Hall Meeting has a "Neutrino Theory"-Flavor to it. NF08 is happy to help. What is needed from 08?

We submit 1-2 questions. Other questions and comments can be submitted, and the theorists can prepare responses.

Think about what we'd like to understand from the community. For example, what is the structure of the program? Think about how we want to steer the discussion at the town hall meeting.

Question about LOIs:

Q: Some theorists have been contacted by different groups. Where do they submit? Do we cross list?

Ans: Submit to all groups they think are appropriate. Up to topical conveners to determine where it best lives.

Good for groups to coordinate the requests for LOIs.

Note that authors can coordinate so that all their names are on one LOI.

Attendees agreed to have semi-regular meetings, and to keep the group in contact. Next meeting would be scheduled when there's something to report. Will advertise to all topical conveners.
